

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-20 are pending in the present application. The Examiner is respectfully requested to reconsider and withdraw his rejections in view of the amendments and remarks as set forth below.

I. Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-6 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Li (U.S. Patent No. 5,874,175). This rejection is respectfully traversed.

At the outset, Applicants note independent Claims 1 and 16 have been amended to include the limitation of "a monolithic ceramic insert" for joining a ceramic composite conduit to a metal conduit. Applicants submit Li '175 does not disclose or teach the Applicants' invention as claimed.

Li '175 teaches a 70:30 cartridge brass core wherein: "[t]his composite metallic disc joins together a ceramic body and a metal body." (col. 12, lines 33-35). Applicants submit a cartridge brass core is not a monolithic ceramic and hence Applicants respectfully assert Claims 1 and 16 define over Li '175. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

Applicants further note that Claims 2-6 and 17-18 depend from Claims 1 and 16 which are now believed to define over the art of Li '175. Accordingly, Applicants submit that Claims 2-6 and 17-18 define over the prior art as well.

Claims 1, 2, 5, 7, 9 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by MacLean et al. (U.S. Patent No. 5,231,833). This rejection is respectfully traversed.

Applicants note independent Claim 1 includes the limitation of “a monolithic ceramic insert disposed inside the ceramic conduit and the metal conduit”. The Examiner states MacLean ‘833 discloses an insert (60) for joining a metal conduit (58) to a ceramic conduit (62). Applicants respectfully assert that the Examiner is improperly interpreting MacLean ‘833.

MacLean ‘833 clearly states that an “insulation layer 62...[is] conventionally wrapped around the manifold tube 58a”. (col. 4, lines 48-51) Thus, MacLean ‘833 teaches an “insert” 60 placed over the metal conduit 58 and not disposed inside the metal conduit as claimed. Accordingly, Applicants assert Claim 1 defines over MacLean ‘833 and request reconsideration and withdrawal of this rejection. Applicants further aver Claims 2, 5, 7 and 9, which depend from Claim 1, also define over MacLean ‘833.

With regard to Claim 16, Applicants further note that independent Claim 16 recites the limitation of “placing a metal conduit over the monolithic ceramic insert”. Applicants assert MacLean ‘833 does not teach or suggest the Applicants’ invention as claimed. In particular, MacLean ‘833 teaches an “insulation layer 60...conventionally wound around the manifold tube 58a”. (col. 4, lines 48-51) Hence, in the invention of MacLean ‘833, the insulation layer 60 is placed over the metal conduit and not under the metal conduit as claimed. Applicants further note that to reverse the placement of the insulation layer to place it below the metal conduit would render the invention of MacLean ‘833 improper for its intended purpose. Accordingly, Applicants assert Claim 16 defines over MacLean ‘833 and request reconsideration and withdrawal of this rejection.

Claims 4, 6, 8, 10-15, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLean et al. (U.S. Patent No. 5,231,833) in view of Tuffias et al. (U.S. Patent No. 5,855,828). This rejection is respectfully traversed.

With regard to Claims 4, 6 and 8, Applicants assert these claims depend from independent Claim 1, which is believed to be in condition for allowance. Thus, Applicants respectfully submit Claims 4, 6 and 8 are also in condition for allowance. Reconsideration and withdrawal of these rejections are respectfully requested.

Applicants submit that the combination of MacLean '833 with Tuffias et al. '828 does not render obvious the present invention. Specifically, independent Claim 10 includes the limitation of "a silicon nitride insert disposed inside the ceramic matrix composite rocket nozzle and metal manifold" and independent Claim 19 includes the limitation of "placing a metal manifold over the silicon nitride insert".

As discussed previously, MacLean '833 teaches an insulative layer 60 disposed over the metal conduit 58. Furthermore, the modification of MacLean '833 to place the metal conduit 58 over the insulative layer 60 would render MacLean '833 improper for its intended purpose. Accordingly, Applicants assert both independent Claims 10 and 19 define over the prior art and are believed to be in condition for allowance. Additionally, Applicants submit Claims 11-15, 17 and 20, which depend from independent Claims 10 and 19, are also in condition for allowance. Therefore, reconsideration and withdrawal of these rejections are respectfully requested.

V. Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests

that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Amended) A joint assembly comprising:
at least one ceramic matrix composite conduit;
at least one metal conduit; and
[an] a monolithic ceramic insert disposed inside the ceramic composite conduit
and the metal conduit;
wherein the ceramic composite conduit is joined to the metal conduit using the
insert.

16. (Amended) A process for joining a ceramic matrix composite conduit to a
metal conduit comprising the steps of:

- (a) securing [an] a monolithic ceramic insert inside at least one fiber preform
of the ceramic matrix composite conduit;
- (b) co-processing the monolithic ceramic insert with the fiber preform;
- (c) placing a metal conduit over the monolithic ceramic insert; and
- (d) securing the metal conduit to the monolithic ceramic insert.